REMARKS

The rejection of claims 1-17 under 35 USC 103(a) as being unpatentable over U.S. Patent 5,051,139 to Eck (Eck '139) in view of the Applicant's admitted prior art (AAPA) is respectfully traversed. Eck '139 describes a process for the manufacture of ***semi-finished*** products or preformed parts. See, Title and Abstract. This process involves "thermomechanically deforming the fabricated materials about two to about four times in succession employing a strain of approximately 3-25% each time such that the overall strain does not exceed about 75%." Col. 2, ll. 23-28. At least one, or all of the ***intermediate*** annealing operations can be implemented in two steps; the first partial step involving annealing above the recrystallization temperature and the second partial step annealing at the hot forming temperature. Col. 2, ll. 37-48.

With respect to the Applicant's claimed invention, the sintered body is mechanically worked to a ***near-finished*** form, subjected to recrystallization, deformed from about 7% to about 18% to a ***finished*** form, and then subjected to a ***final*** recrystallization annealing. There appears to be no final recrystallization in Eck '139. In fact, the process in Eck '139 is contrasted with prior art processes wherein large deformation strains (i.e. 90%) are imparted to the material and then the material is subjected to a ***final*** recrystallization annealing. Col. 1, ll. 35-47. Also, all three Examples in Eck '139 are significantly deformed after the last thermal treatment. In Example 1, the sintered blank is forged at 10% strain from a height of 43 mm to 39 mm. It is then stated that the annealing and forging operations are repeated two more times. Even assuming the maximum strain of 25% is applied in each of the two subsequent forgings, the height of the blank would have been reduced to no less than 21 mm.[1] The blank is then subject to a ***final forging*** to a height of 12 mm — a reduction of at least 40%! Col. 5, l. 65. This large deformation is also seen in Example 3 wherein after the fourth annealing the circular blanks are ***finish-forged*** from a height of 35 mm to 17 mm — a reduction of at least 50%! Col. 6, ll. 37-41. No recrystallization is conducted in any of the three Examples after the final forging.[2]

The Applicant respectfully asserts that process in Eck '139 is more complicated than the Applicant's claimed process which, after working the piece to near final shape, requires only two thermal treatments with one minor deformation step in between to reach the final form. Eck '139 requires ***about two to about four*** thermomechanical deformations employing a strain of 3-

[1] 39 mm x 0.75 = 29 mm x 0.75 = 21 mm

[2] Example 2 is made according the procedure in Example 1. Col. 6, l. 5.

25%. Col. 2, l. 24-28. This is at least one more low-strain deformation than required by the Applicant's invention. After the about two to about four thermomechanical deformations, the material apparently is forged with a significantly greater amount of deformation to its final thickness as indicated in Examples 1-3. Thus, the material is not recrystallized in the finished form as asserted by the Examiner. Office Action at ¶2. Moreover, the large amount of stored energy in the material after the final forging would be counter to the Applicant's invention. *See*, Specification, page 3, last paragraph. In fact, the process of Eck '139 would appear to be more like the reverse of the Applicant's process than like the Applicant's actual process and therefore the Applicant respectfully asserts that the claimed invention would not be obvious in view of Eck '139 and AAPA.

In view of the foregoing remarks, it is believed that the Examiner's rejections have been overcome and that the application is in condition for allowance. Such action is earnestly solicited.

Respectfully submitted,

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